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ABSTRACT

This study investigated the perceptions and attitudes of practicing teachers towards minimum competency testing for teachers. A 5-point Likert-type general attitude scale was constructed by standard procedure, using item analysis and factor analysis. Eight perspectives from which a teacher may perceive teacher minimum competency testing were delineated from a review of related literature and an examination of the contents of the statements in the initial attitude scale. These were (1) content mastery, (2) teaching skill mastery, (3) certification or licensing, (4) screening or quality control, (5) motivation, (6) professionalism, (7) administrative control, and (8) threatening the integrity of teachers. It was hypothesized that these perspectives are highly predictive of teachers' attitudes toward minimum competency testing. Twenty-seven Bloomington (Indiana) elementary, middle and high school teachers were administered the general attitude scale and semantic differentials on the eight perspectives. Factor analysis was carried out to identify significant factors associated with the eight perspectives. These factors were correlated with the attitude score, and a multiple regression analysis showed that a linear combination of four perspectives (certification, content, teaching skills, and screening) was highly predictive of the teachers' attitude, which turned out to be not favorable for this sample of teachers. The attitude scale and two of the semantic differentials (assessment of content mastery and teaching skills) follow the study. (Author/JAZ)

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TEACHERS' PERCEPTIONS AND ATTITUDES TOWARD MINIMUM COMPETENCY TESTING FOR TEACHERS: A FACTOR ANALYTIC STUDY

by

Suan Yoong

Paper presented at the Twelth Annual Smith Research Conference
H.L. Smith Center for Educational Research
Indiana University, Blooomington, Indiana
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Abstract

This exploratory study investigates the perceptions and attitudes of practicing teachers towards minimum competency testing for teachers. A 5-point Likert-type general attitude scale was constructed by standard procedure, using item analysis and factor analysis. Eight perspectives from which a teacher may perceive teacher minimum competency testing are delienated from a review of related literature and examining the contents of the statements in the initial attitude scale. These were (1) Content Mastery, (2) Teaching Skill Mastery, (3) Certification or Licencing, (4) Screening or Quality Control, (5) Motivation, (6) Professionalism, (7) Administrative Control, and (8) Threatening the integrity of teachers. It was hypothesized that these perspectives are highly predictive of teachers' attitude toward minimum competency testing. 27 Bloomington elementary, middle and high school teachers were administered the general attitude scale and semantic differentials on the eight perspectives. Factor analysis was carried out to identify significant factors associated with the eight perspectives. These factors were correlated with the attitude score, and a multiple regression analysis showed that a linear combination of four perspective: Certification, Content, Teaching Skills, and Screening was highly predictive of the teachers' attitude, which turned out to be not favorable for this sample of teachers.

TEACHERS' PERCEPTIONS & ATTITUDES TOWARD MINIMUM COMPETENCY TESTING FOR TEACHER"

(by Suan Yoong)

INTRODUCTION

Over the past few years, the idea of requiring teachers to pass a rigorous minimum competency test has gained wide spread support. Sandefur (1984) reported that legislative and/or state department of education that mandated some form of competency assessment of teachers were enforced in 38 states, with an additional 7 states reported planning activity. Only 5 states reported no plans to test the competence of teachers. Generally, minimum competency testing programs were implemented at 3 distinct levels: (1) before entrance into a teacher education program; (2) at the end of teacher education program or during the first year of teaching; (3) for certification renewal mandated by the state (Flippo, 1985).

The idea of minimum competency testing for teachers received support from the American Federation of Teachers, with its President, Albert Shanker proposing that a national minimum competency examination for teachers be conducted by an independent national board, and that it be comparable to tests now required for doctors, lawyers, realtors and other professionals (Herald Telephone, 1985). Supporters of teacher competency testing believed that it would "screen--and keep out the incompetents", and that the testing would "reverse the trend that has seen the best and brightest youngsters go into other fields and help increase pay for teachers, now among the lowest paid professionals" (ibid).

The National Education Association initially opposed the idea, reiterating its long-held position that a written examination cannot measure teaching ability (Cameron, 1985). It has, since then, reversed its position, supporting the minimum competency testing idea. Other critics had argued that the competency test would not be able to improve the overall quality of those who wish to enter the teaching profession (Ansah, 1985) and that it would threaten to reduce significantly the number of new minority teachers (Dilworth & Perry, 1984; Hoover, 1984). The controversial debate continues (see, for example, Podemski & Lohr, 1985; Dawson & Dawson, 1985; Carlson, 1984; Scherer, 1983; Purvis & Kramer, 1980), with Phi Delta Kappa (1984) having documented both sides of the arguments in its Hot Topic series number 9.

PURPOSE OF THE STUDY

Although much opinions and sentiments have been expressed by educators, administrators and the public on the issue, there were, however, gross lack of systematic studies on teachers' perceptions and attitudes toward minimum competency testing for teachers. In one of the most comprehensive documentation of studies on teacher attitudes, Powell & Beard (1986) were only able to identify a handful (e.g., Bliss, 1980; Campbell & Williamson, 1980; Conver, 1982; Palmer, Pricess et al., 1983; Simms, 1983) that studied teachers' attitudes toward competency testing. A literature search using ERIC information database yielded only several additional study (Counts & Silverman, 1985; ERS, 1985; Villeme & Hall, 1985; Kimpston & Anderson, 1985; Skehan & Doughty, 1984; Wise & Darling, 1983). In particular, most of these studies were opinion surveys, and in many cases, the attitudinal aspect was but a small part of a larger study.

It is the intention of this study to investigate the perceptions and attitudes of practicing teachers toward minimum competency testing for teachers, particularly when it may become mandatory for them to take a minimum competency test for certification or licensing renewal purpose. Specifically this study seeks to investigate how practicing teachers assign meanings when perceiving teacher competency testing from various perspectives and to identify factor structure associated with the teachers' perceptions. It is hypothesized that these various perspectives, when taken as predictor measures, would be highly predictive of teachers' general attitudes toward minimum competency testing. It is also the intention of this study to identify a linear combination of correlates that best predicts teachers' general attitudes toward competency testing.

METHOD

Subject & Sampling

The subjects for this study were 27 teachers from five schools in the Bloomington area, covering elementary, middle and high schools. The teachers were identified through an unusual process. 5 students, each studying in the 5 schools, respectively, were asked to approach their teachers to complete the research instrument. A few more teachers who were attending the graduate education courses at Indiana University were also approached. The involvement of the teachers were voluntary. For this reason, a number of them did not wish to participate. This selection process was used because the normal, official process of going through the school boards/corporations was time consuming and involved

some paper work.

There were 18 female and 9 male teachers in this sample. The average teaching experience of the teachers was 15.2 years with a standard deviation of 6.1 years. 12 of the teachers had less than 15 teaching experience. A total of 12 teachers were from high school, 10 from middle school and the remaining 5 from elementary schools. With the exception of 5 teachers, who were teaching part-time in schools, the remaining were full time teachers.

Measuring Instruments

Two instruments were developed. The first was a likert-type attitude scale for measuring general attitude toward Minimum Competency Testing for teachers. The second was a set of semantic differentials designed to measure how teachers perceive or assign meanings to Minimum Competency Testing from eight perspectives.

ATTITUDE SCALE: This was an attitude scale containing 18 general statements, each expressing a particular belief or opinion about minimum competency testing for teachers. Some examples include:

* Competency testing raises the confidence of teachers.
* Present teachers should not have to take competency tests.
* Competency tests will screen out the poor teachers.

Respondents were requested to rate each of the statements using a 5-point scale: Strongly Disagree (1), Disagree (2), Uncertain/Neutral (3), Agree (4), and Strongly Agree (5).

The attitude scale was developed following the standard procedure of attitude scale construction (e.g. Mueller, 1986). By tapping a broad diversity of all possible opinions from 11 graduate students and the

instructor of the Educational Measurement (P527) course at Indiana University, a pool of 40 items were generated. These were pilot tested with 20 respondents, most of whom were teachers (Yoong, 1985). The results were item-analyzed using the reliability program of the up-dated version (7-9) of SPSS. The reliability index was high (Cronbach's alpha = 0.90). 27 items had fair to moderately high discriminations (item to total score correlation coefficient greater than 0.30). Of these, 15 were positively stated, and the remaining negatively stated.

The standard practice was to reduce the size of the attitude scale as much as possible, for administrative efficiency, while still maintaining high reliability or even improve it. Attitude scaling literature revealed that a scale length of about 20 items would give pretty good reliability, if well constructed (Mueller, 1986). It appeared that that choosing ten most discriminating itema each from the positively and negatively worded statements would serve the purpose.

Gardner (1975), in a critical review of some research on attitude measurement in Britain, noted two startling technical deficiencies: (1) the use of attitude scales which lack any discernible construct; (2) the use of attitude scales which attempted to reduce multidimensional attributes to single scores.

The use of a summated scale such as the Likert-type scale for items that did not have something in common, even though they might appear related was quoted by Gardner as reflecting the first type of deficiency. In such cases, the attitude scale theory was entirely inapplicable, and statistical procedures such as summing up of item scores and test reliability measure were completely irrelevant. The

second type of deficiency was less elementary in that there had been some attempt to define theoretical constructs. The problem was the confounding of several constructs into a single and unidimensional trait called attitude. This assumption was unwarranted and false, since the total score yielded by the summated rating scale generally represented a confused mixture of separate variable or constructs.

To avoid falling into the pitfalls, the data was also factor-analyzed to "cluster" items into some common factors or trait to obtain unidimensional scales. The principal axes factoring with iteration and varimax orthogonal rotation procedures of SPSS was used. 11 factors with eigenvalues greater than 1 were obtained, accounting for 90% of the total variance (Table 1).

Table 1: Attitude Scale: Factors & Their Eigenvalues

Factor	1	2	3	4	5	6	7	8	9	10	11
Eigen value	11.5	4.2	3.4	3.3	2.9	2.3	2.1	2.0	1.7	1.4	1.2
% Var	28.8	10.6	8.6	8.3	7.2	5.7	5.1	4.9	4.1	3.6	2.9
Cum %	28.8	39.3	48.0	56.3	63.5	69.2	74.4	79.3	83.4	87.0	90.0

An investigation of the factor loadings (Table 2) indicated that factor 1 had 18 items with factor loadings (absolute value) greater than 0.3, factor 2 had 12 and the rest had between 3 to 8. An examination of the contents of the items loaded in each of the factors, factor 1 was found to be a general factor and the others were specific factors. In fact, upon closer scrutiny of the items loaded in each of the factors, certain traits or characteristics were discernible in many of the

Table 2: Item Statistics & Factor Loadings

ITEM NO.	*	MEANS	S.D.	ITEM-TOTAL CORRELATION	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
(1)	+	3.1	1.11	0.62	0.45	0.41	0.33	-0.06
2	-	3.45	1.23	0.19	0.06	0.10	-0.15	0.20
(3)	+	4.10	1.37	0.47	0.43	0.15	0.28	0.13
4	+	3.75	0.85	-0.01	0.23	-0.16	-0.15	-0.40
(5)	-	2.05	1.00	0.60	0.36	0.05	-0.14	0.11
6	+	3.35	1.18	0.45	0.21	0.12	0.52	0.33
7	+	3.35	1.18	0.33	0.19	0.20	0.80	-0.29
8	+	2.10	0.85	0.25	0.21	0.10	0.04	0.15
9	+	2.45	0.89	0.60	0.26	0.17	0.29	-0.00
(10)	-	3.60	0.99	0.33	0.61	-0.10	0.15	-0.06
(11)	-	3.15	0.75	0.84	0.83	0.17	0.15	0.22
(12)	+	3.00	0.92	0.65	0.91	0.22	-0.02	-0.07
(13)	+	4.20	0.70	0.44	0.56	-0.16	0.28	0.55
14	-	3.45	1.14	0.54	0.03	0.39	0.26	0.41
15	-	2.05	0.89	0.02	-0.15	0.11	-0.03	-0.03
16	+	3.35	1.09	0.24	0.18	0.58	0.02	-0.29
17	+	4.00	0.46	0.59	0.28	0.08	0.62	0.15
(18)	+	3.50	1.00	0.72	0.64	0.28	0.45	0.11
(19)	+	3.45	1.05	0.75	0.49	0.41	0.52	0.22
(20)	+	2.45	0.83	0.55	0.39	0.52	0.05	0.34
21	+	3.10	1.21	0.67	0.29	0.77	0.34	0.11
(22)	-	3.75	1.02	0.70	0.73	0.26	0.15	0.15
(23)	+	2.75	0.97	0.66	0.47	0.40	-0.01	0.04
(24)	-	3.15	1.04	0.62	0.54	0.31	-0.16	0.47
25	-	2.40	0.60	0.04	0.24	0.01	-0.36	-0.06
26	-	2.90	1.17	-0.15	0.02	0.11	-0.82	-0.02
27	+	3.10	1.17	0.39	-0.02	0.85	0.00	-0.19
(28)	-	2.80	0.89	0.42	0.30	0.67	-0.16	-0.30
29	+	4.70	0.65	0.03	-0.02	0.09	-0.11	-0.08
30	-	1.90	1.07	0.33	0.11	0.08	0.04	0.04
(31)	+	3.40	1.10	0.74	0.34	0.67	0.16	0.39
32	-	2.40	0.82	-0.20	-0.13	0.03	0.15	-0.83
33	-	3.35	0.67	0.63	0.21	0.74	-0.04	0.17
34	-	0.29	1.07	0.11	-0.07	0.02	0.06	0.87
35	-	3.70	0.92	0.20	0.15	-0.07	0.02	0.11
(36)	-	2.85	0.99	0.57	0.37	0.02	0.21	0.37
37	+	2.95	0.89	0.03	-0.06	0.08	-0.09	-0.20
38	+	3.75	0.79	-0.08	-0.01	-0.18	0.21	-0.03
(39)	-	2.60	1.10	0.70	0.74	0.17	0.03	-0.24
(40)	-	3.10	0.98	0.85	0.46	0.37	0.32	0.13

* + = positively worded statement; - = negatively worded statement

factors. Factor 1 appeared to be a general attitude factor consisting of a potpourri of general but related items. Factor 2 appeared to reflect ratings focusing on certification aspects of teacher competency testing vis-a-vis the administrator/employer. Factor 3 appeared to reflect ratings focusing on teaching skills and methods, while Factor 4 appeared to be related to teacher confidence. Factor 5 seemed to relate to subject matter/content mastery, and Factor 6 was related to licensing. Factor 7 reflected screening and threatening aspect of teacher competency testing. The remaining factors were less discernible.

Factor 1 was the only factor that had sufficient number of "loaded" items with moderate or high discrimination indices. There were 18 of them, half of which were stated negatively and the other half positively. Thus these items appeared most suitable for making up the final attitude scale. A rerun of the item analysis and reliability program on this final 18-item attitude scale showed improved reliability (Cronbach alpha = 0.93).

SEMANTIC DIFFERENTIALS: The factor structure obtained from the pilot testing of the attitude scale revealed certain discernible dimensions or perspectives from which teachers perceived minimum competency testing. Consistent with views expressed in literature (e.g. Phi Delta Kappa, 1984) on competency testing, eight dimensions or perspectives were identified. These include viewing competency testing from the perspectives of (1) contents/subject matter mastery assessment; (2) teaching skills mastery assessment; (3) certification or licensing; (4) screening or quality control; (5) motivation; (6) enhancing professionalism; (7) administrative control; and (8) being a threat to teachers.

A Semantic Differential scale consisting of 12 pairs of bipolar adjectives was constructed to measure how teachers assign meanings to minimum competency testing when perceiving from each of the eight perspectives. The respondents were asked to mark the position along the bipolar adjective 11-point scales (ranging from 0 to 100 with increments of 10) that best reflect their perceptions

Procedure

The final Attitude Scale and the Semantic Differential Scale were administered to the same teachers on different occasions. However, the order of administration was different for two groups of teachers. One group of 15 teachers were given the Semantic Differential Scale first. Upon completion and returning the Scale, the Attitude Scale was then administered. For the other 12 teachers, the Attitude Scale was administered first followed by the Semantic Differential Scale. The order of the 8 perspectives in the Semantic Differential Scale were arranged differently in the process of collating so that different teachers rated the 8 perspectives in the Semantic Differential Scale in different order.

Outline of Analyses

Three different approaches were adopted to analyze the data.

First, the scores for each item in the Attitude Scale or each bipolar adjective pair in the Semantic Differential Scale were summated across all the items/adjective pairs to give a mean summated score for each respondent. The scores of statements stated negatively were inverted prior to summation. The individual mean summated scores were

then added across all the respondents to obtain an overall mean score. Thus overall mean scores were obtained for attitude and each of the 8 perspectives in the Semantic Differential Scale. The Semantic Differential Scale generated a 8 by 12 matrix for each respondent. The summation and overall mean scores were computed using the PROC MATRIX procedure in the SAS program. The reliability procedure of the SPSS (version 7-9) program was also carried out on the attitude data.

The second approach involved the use of factor analysis to identify the factor structure of teachers' perceptions of minimum competency testing. The maximum likelihood procedure followed by promax rotation in the SAS program was carried out.

The third approach involved multiple regression analyses to predict teachers' attitudes from a linear combination of the 8 perspectives from which teachers perceive minimum competency testing. The dependent variable was the mean attitude score of the respondent, while the independent predictor variables were the mean scores of the respondent on the semantic differential scales on each of the eight perspective. Stepwise multiple regression procedure was carried out to identify a combination of best predictors for teachers' attitudes toward competency testing.

RESULTS

Descriptive Statistics.

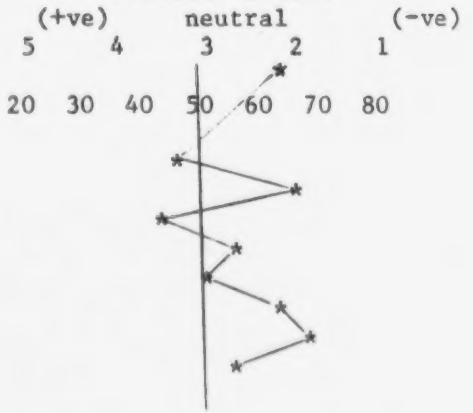
The means and standard deviations for the overall summated scores for the Attitude Scale and 8 perspectives in the Semantic Differential

Scales are summarized in Table 3. The results are best summarized by the profiles exhibited in Fig. 1.

Table 3
Descriptive Statistics

VARIABLE	MEAN	S.D.
OVERALL ATTITUDE	2.17	0.73
PERSPECTIVES		
CONTENTS	46.2	10.5
TEACHING SKILLS	65.6	7.
CERTIFICATION	42.7	11.2
MOTIVATION	55.5	17.8
PROFESSIONALISM	51.6	6.3
ADMIN. CONTROL	63.9	8.0
THREAT	68.6	9.0
SCREENING	54.1	8.9

Fig. 1
Overall Profile



The overall attitude of the teachers toward minimum competency testing was not favorable. In particular, it should be noted that the teachers rated minimum competency testing negatively on 6 of the 8 perspectives, especially on administrative control, professionalism and teaching skills assessment. The reliability of the Attitude Scale was high (Cronbach alpha = 0.89).

The differences in the attitudes and perceptions toward minimum competency testing between male and female teachers, and between those who had more and less than 15 years of teaching experience are given in Tables 4 and 5. Here again the differences are best summarized by the profiles in Fig. 2 and Fig.3. The difference between the general attitudes of male and female teachers were small. The differences in their perceptions were relatively large in 7 out of the 8 perspectives, with male teachers generally being more negative than female teachers.

Table 4: Differences Between the Sexes

VARIABLE	FEMALE	MALE
ATTITUDE	2.17	2.05
PERSPECTIVES:	o	*
CONTENTS	42.5	53.6
TEACHING SKILLS	61.6	73.6
CERTIFICATION	43.0	42.2
MOTIVATION	58.8	48.9
PROFESSIONALISM	54.5	45.8
ADMIN. CONTROL	61.0	69.7
THREAT	63.3	79.2
SCREENING	51.3	59.8

Fig. 2
Profiles by Sex

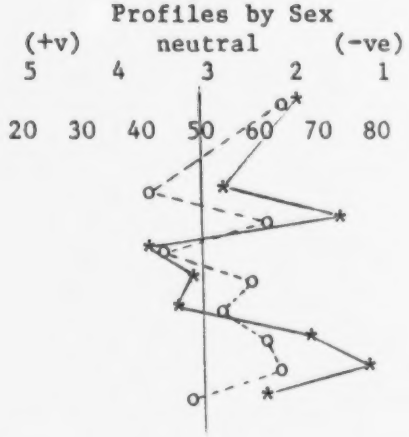
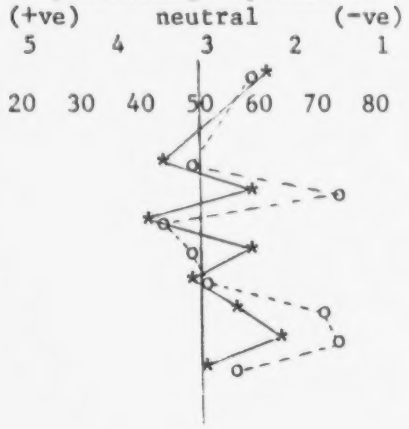


TABLE 5: Differences by Teaching Experience

VARIABLE	<15 yr	>15 yr
ATTITUDE	2.42	2.38
PERSPECTIVES:	o	*
CONTENTS	49.4	43.7
TEACHING SKILLS	74.0	58.9
CERTIFICATION	43.8	41.9
MOTIVATION	50.4	59.5
PROFESSIONALISM	52.3	51.0
ADMIN. CONTROL	72.1	57.4
THREAT	74.0	64.3
SCREENING	52.9	55.1

Fig. 3: Profiles by Teaching Experience



The differences between the general attitudes of the more- and the less-experienced teachers were also small. However, the differences in their perceptions were relatively large in 4 out of the 8 perspectives, with the less experienced teachers generally being more negative than the more experienced teachers.

Factor Analysis

The factor analysis of the semantic differential scores for the 8 perspectives of perceptions by the maximum likelihood solution yielded

five factors solution that satisfied the criterion of eigenvalue greater than 1 (Table 6; Fig. 4).

Table 6: Eigenvalues

FACTOR	EIGENVALUE	% VAR	CUM VAR
1	136.2	70.1	70.1
2	32.7	16.8	86.9
3	20.4	10.5	97.4
4	3.7	1.7	99.1
5	1.9	0.9	100.0

Fig. 6: Scree Plot of Eigenvalues

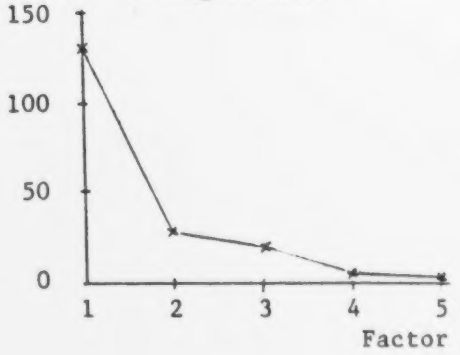


Table 7
Factor Loadings After Promax Rotation

PERSPECTIVES	FACTOR 1	2	3	4	5
CERTIFICATION	0.87	-0.12	-0.00	-0.07	-0.03
SCREENING	0.79	-0.10	-0.12	0.02	0.12
TEACHING SKILLS	0.77	0.14	0.05	0.15	-0.14
CONTENTS	0.60	0.11	0.10	-0.07	0.15
PROFESSIONALISM	-0.08	0.86	-0.04	-0.03	0.44
THREAT	-0.06	-0.05	0.73	-0.04	0.03
MOTIVATION	-0.05	-0.05	-0.05	0.64	0.04
ADMIN. CONTROL	0.26	0.23	0.10	0.05	0.36

The factor structure showed some interesting results. Factor 1, which alone accounted for 70% of the variance, was loaded on 4 perspectives of teacher perceptions: Certification or Licensing, Screening, Teaching Skills Assessment and Contents/Subject Matter Assessment. The other perspectives were each loaded on one of the factors.

Multiple Regression

A general multiple regression where all the eight predictor

variables were entered into the regression was first performed to test for linearity, i.e. assumptions about the residuals being independent, zero mean, constant variance and normality. The F-test for the full model was significant at 0.01 level (Table 8).

Table 8: F-test for Full Regression Model

SOURCE	DF	SUM SQUARE	MEAN SQUARE	F VALUE	PROB>F
MODEL	8	9.5978	1.1997	5.166	0.0018
ERROR	18	4.1800	0.2333		
C TOTAL	26	13.7778			

R-SQUARE 0.6966 ADJ R-SQ 0.5618

The full model accounted for about 70% of the total variance due to regression. Thus, there were about 30% of the variance not accounted for. The Durbin-Watson statistics was 2.138, thus rejecting the hypothesis that autocorrelation was zero, and the independent assumption being met. While SAS program guaranteed the fulfillment of zero mean assumption, the residual plot and test of goodness of fit showed that the constant variance and normality assumption were also met.

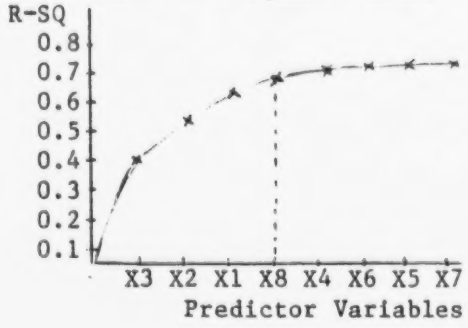
To identify the best correlates for predicting teachers' attitudes toward minimum competency testing, four selection procedures (forward selection, backward elimination, stepwise regression & maximum R-square improvement) were performed. All these procedures gave identical solutions, i.e. a linear combination of four predictors, namely, Certification or Licensing, Teaching Skills Assessment, Contents/Subject Matter Assessment, and Screening would best predict teachers' attitudes toward minimum competency testing (Table 9). The linear combination of these four predictor variables accounted for almost all the variance of

the full model.

Table 9: Stepwise Regression Summary Statistics

VARIABLE ENTERED	R-SQUARE
X3 CERTIFICATION	0.4069
X2 TEACHING SKILLS	0.5347
X1 CONTENTS	0.6351
X8 SCREENING	0.6949
X4 MOTIVATION	0.6959
X6 ADMIN. CONTROL	0.6964
X5 PROFESSIONALISM	0.6966
X7 THREAT	0.6966

Fig. 7
Plot of R-Square Values



The regression equation is represented by:

$$Y(\text{attitude}) = 6.032 - 0.012X1 - 0.013X2 - 0.037X3 - 0.016X8$$

DISCUSSIONS AND CONCLUSIONS

Summary of Main Findings

1. The general attitudes of the teachers toward minimum competency testing were not favorable, as measured by the Attitude Scale. In particular their perceptions toward minimum competency testing were negative on 6 of the 8 perspectives, especially on administrative control, professionalism and teaching skills assessment.

2. The difference between the general attitudes of male and female teachers were small. However, the differences in their perceptions were relatively large in 7 out of the 8 perspectives, with male teachers generally being more negative than female teachers.

3. The differences between the general attitudes of the more and the less experienced teachers were also small. However, the differences in their perceptions were relatively large in 4 out of the 8 perspectives, with the less experienced teachers generally being more negative than the more experienced teachers.

4. Factor analysis revealed that Factor 1, which alone accounted for 70% of the variance, was loaded on 4 perspectives of teacher perceptions: Certification or Licensing, Screening, Teaching Skills Assessment and Contents/Subject Matter Assessment. The other perspectives were each loaded on one of the other 4 factors.

5. Stepwise Multiple Regression analysis showed that a linear combination of four predictors, namely, Certification or Licensing, Teaching Skills Assessment, Contents/Subject Matter Assessment, and Screening would best predict teachers' attitudes toward minimum competency testing, with about 70% of the variance being accounted for.

Limitation of the Study

Several limitations of this study need to be noted.

The first is related to the issue of sampling. In the first place, the sample was relatively small in comparison to the whole teacher population. Secondly, the subjects were not randomly selected based on some formal sampling design. The findings were not intended to be generalized across all teachers. Rather, they should be treated as exploratory ideas with implications for conducting more rigorously controlled studies and involving wider and more representative samples.

Discussions

1. Indiana is one of the states that do not require mandatory minimum competency testing for teachers already in service. The general attitude of this sample of practicing teachers toward minimum competency testing was negative, indicating that the teachers were not in favor of it. Moreover, it appeared that they tended to perceive competency testing as being unable to assess teaching skills, but recognized its ability to assessment contents or subject matter mastery. They also perceived it as threatening as well as unpleasant for administrative control. However, they appeared to be in agreement with the certification aspect of minimum competency testing.

2. The factor structure indicated that for this group of teachers, minimum competency testing associated strongly with certification or licensing, teaching skills and contents/subject matter mastery assessments and screening or quality control. Indeed, the multiple regression analysis showed that linear combination of these four measures were highly predictive of teachers' overall attitudes toward minimum competency testing. It is significant that two different statistical procedures should have produced similar results: the same four perspectives being major determinants of teachers' perceptions as well as being the best predictors for their attitudes.

3. The male teachers in this sample tended to perceive minimum competency testing more negatively than female teachers. On the other hand, teachers with less than 15 years of teaching experience also perceived minimum competency test more negatively than those with more than 15 years of experience. However, in view of interaction effect

between sex and years of teaching experience (there were relatively more male teachers with less than 15 years of teaching experience and more female teachers with more than 15 years of teaching experience), it was not known whether gender or teaching experience was the moderating variable.

Implications of the Study

Being an exploratory study, this study generated some interesting findings pertaining to teachers' perceptions and attitudes toward minimum competency testing for teachers. A further extension of this study would be carried out, involving a more representative sample, and using a rigorous design. In particular, since there were still 30% of the variance due to regression was not accounted for, the extension study should also consider taking into consideration other perspectives and variables to improve on the regression equation. The extension study should preferably be grounded on a sound theoretical basis. Indeed, the constructs pertaining to the perceptions of minimum competency testing for teachers from the various perspectives need to be explored further and clearly defined.

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BIBLIOGRAPHY

1. Ansah, S.L. (1985). Quality teachers: is testing the answer? Paper presented at the Annual Meeting of the Mid-South Educational Research Association. November 6-8, 1985 at Biloxi, MS.
2. Bliss, S.S. (1980). An analysis of attitudes toward selected characteristics of minimum competency programs in mathematics as perceived by public school educators in Kansas, Nebraska, Iowa, Colorado & Missouri. Ph.D. dissertation, Kansas State University.
3. Cameron, C. (1985). The NEA position on testing in-service teachers. Educational Measurement: Issues & Practice. 4(3), 25-27
4. Campbell L.R. & Williamson, J.A. (1980). Administrators and teachers on reform in education. Clearing House, 54, pp. 133-134.
5. Carlson, K. (1984). The teacher certification struggle in New Jersey. (ERIC DOC. ED250315 & ED250316)
6. Conver, M.E. (1982) Minimal competency testing, the professionals, the handicapped & the law. Illinois School Research & Development, 19(1), pp. 26-31.
7. Counts, S. & Silvermann, D.L. (1985). Climate survey, teacher education & certification. Alaska State Department of Education, Juneau.
8. Dawson,K.S. & Dawson, R.E. (1985). Minimum competency testing and local schools. St. Louis, MO: Washington University
9. Dilworth, M.E. & Perry, V.Y.T. (1984). Teacher totter: a report on teacher certification issues. Occasional paper of the Institute of Educational Policy No. 6. Howard University, Washington, D.C.
11. ERS (Educational Research Service). Teachers' and Principals' views on proposed educational reforms. ERS Staff Report. Spectrum. 3(1), 11-12
12. Flippo, R.F. (1985). Teacher certification testing across the United States and a consideration of some of the issues. Paper presented at the Annual Meeting of AERA. March 31-April 4, 1985 at Chicago, IL.
13. Gardner, P.L. (1975). Attitude measure: a critique of some recent research. Educational Research, 17, pp.101-109.
14. Herald Telephone (1985). Union president campaigns for national teacher exam. The Herald Telephone. May 28, 1985, p.13.
15. Hoover, M.E.R. (1984). Teacher competency tests as educational genocide for blacks: the Florida teacher certification examination. Negro Education Review. 35(2), 70-77
16. Kimpston, R.D. & Anderson, D.H. (1985). Teacher and Principal Concerns: The implementation of benchmark testing. Planning and Channging. 16(2), 96-104
17. Mueller, D.J. (1986). Measuring Social Attitudes: A Handbook for Researchers & Practitioners. New York: Teachers College Press, Columbia University.
18. Nie, N.H. et al. (1981).Statistical Packages for the Social Science Update 7-9. New York: McGrawhill.

19. Palmer, P. et al. (1980). Florida's minimum competency program: a survey of teachers' opinion. High School Journal. 66(2), 104-109.
20. Phi Delta Kappa (1984). Teacher Certification. Hot topic issues No. 9. Bloomington, IN: Phi Delta Kappa
21. Podemski, R.S. & Lohr, C.K. (1985). Why we are testing teachers: some policy issues. Educational Measurement: Issues & Practice. 4(3), 20-23
22. Powell, M. & Beard, J.W. (1986). Teacher Attitudes: An Annotated Bibliography & Guides to Research. New York: Garland Publishing Inc.
23. Purvis, J.R. & Kramer, P. (1980). Teacher concerns: a position paper. (ERIC DOC. ED220447)
24. Sandefur, J.T. (1984). Competency Assessment of Teachers. The 1984 Report.
25. SAS User's Guide: Statistics. (1982). Cary, N.C.: SAS Institute Inc.
26. Scherer, M. (1983). Who's afraid of teacher competency tests? Instructor. 92(6), 48-50
27. Skehan, J.W. & Doughty, J.F. (1984). Teachers', Board Members' and Citizens' perceptions of educational issues: a comparative study. Research in Rural Education, 2(3), 121-126
28. Villeme, M. & Hall, B. (1985). The Florida teacher certification examination: perceptions of those who have been required to take it. Action in Teacher Education, 7(1-2), 83-87
29. Simms, R.L. (1983). Attitudes of Oklahoma teachers toward House Bill 1706. Journal of Teacher Education, 34(2), pp. 26-28.
30. Wise, A.E. & Darling, H.L. (1983). Beyond standardization: state standards and school improvement. Paper prepared for the National Institute of Education Conference on State and Local Policy Implications of Effective School Research
31. Yoong, S. (1985). The development of an attitude scale to measure attitude toward minimum competency testing for teachers. EDUC P527 course project. Indiana University.

ATTITUDE TOWARDS MINIMUM COMPETENCY TESTING FOR TEACHERS

DIRECTION: Each of the statements below is an expression of or opinion about Minimum Competency Testing for Teachers. Decide whether you Strongly Agree (SA) or Agree (A) or Neutral (N) or Disagree (D) or Strongly Disagree (SD) with the statements. Circle the appropriate response to the right of each statement.

1. Teachers should have to take competency tests every five years	SA	A	N	D	SD
2. Teachers should be required to pass minimum competency tests before getting licensed	SA	A	N	D	SD
3. Teacher competency tests fail to accurately measure those characteristics and qualities which determine actual teaching performance in the class	SA	A	N	D	SD
4. Present teachers should not have to take take competency tests	SA	A	N	D	SD
5. Competency testing of teachers is too expensive	SA	A	N	D	SD
6. Competency testing of teachers would improve the image of the teaching profession	SA	A	N	D	SD
7. Competency tests tailor-made for a specific grade level and/or subject area would be better than a general test	SA	A	N	D	SD
8. Teachers currently employed should be tested for their levels of competency in teaching methodology	SA	A	N	D	SD
9. Competency testing raises the confidence of teachers	SA	A	N	D	SD
10. Competency testing poses a threat to teacher professionalism	SA	A	N	D	SD
11. Competency testing will screen out the poor teachers	SA	A	N	D	SD
12. Competency tests will make teachers feel inferior	SA	A	N	D	SD
13. The use of competency testing will increase the quality of educational training	SA	A	N	D	SD
14. Competency tests are redundant because most states require teachers to take tests before they are certified	SA	A	N	D	SD
15. Universities are capable of screening out poor teachers without special competency tests	SA	A	N	D	SD
16. Teachers are being unfairly blamed for the decline in student academic performance	SA	A	N	D	SD
17. The gain from competency testing are not worth the cost	SA	A	N	D	SD
18. Teachers currently employed should be tested for their mastery of specific subject matter	SA	A	N	D	SD

Assessment of Content Mastery

Pleasant	0	10	20	30	40	50	60	70	80	90	100	Unpleasant
Unnecessary	0	10	20	30	40	50	60	70	80	90	100	Necessary
Useful	0	10	20	30	40	50	60	70	80	90	100	Useless
Inaccurate	0	10	20	30	40	50	60	70	80	90	100	Accurate
Complex	0	10	20	30	40	50	60	70	80	90	100	Simple
Valid	0	10	20	30	40	50	60	70	80	90	100	Invalid
Friendly	0	10	20	30	40	50	60	70	80	90	100	Unfriendly
Bad	0	10	20	30	40	50	60	70	80	90	100	Good
Popular	0	10	20	30	40	50	60	70	80	90	100	Unpopular
Weak	0	10	20	30	40	50	60	70	80	90	100	Strong
Cheerful	0	10	20	30	40	50	60	70	80	90	100	Depressing
Natural	0	10	20	30	40	50	60	70	80	90	100	Unnatural

Assessment of Teaching Skills

Pleasant	0	10	20	30	40	50	60	70	80	90	100	Unpleasant
Unnecessary	0	10	20	30	40	50	60	70	80	90	100	Necessary
Useful	0	10	20	30	40	50	60	70	80	90	100	Useless
Inaccurate	0	10	20	30	40	50	60	70	80	90	100	Accurate
Complex	0	10	20	30	40	50	60	70	80	90	100	Simple
Valid	0	10	20	30	40	50	60	70	80	90	100	Invalid
Friendly	0	10	20	30	40	50	60	70	80	90	100	Unfriendly
Bad	0	10	20	30	40	50	60	70	80	90	100	Good
Popular	0	10	20	30	40	50	60	70	80	90	100	Unpopular
Weak	0	10	20	30	40	50	60	70	80	90	100	Strong
Cheerful	0	10	20	30	40	50	60	70	80	90	100	Depressing
Natural	0	10	20	30	40	50	60	70	80	90	100	Unnatural